

Claims

1. A sortation conveyor configured to selectively divert articles at one of a plurality of divert locations, said sortation conveyor comprising:
 - a. a plurality of switches associated with said plurality of divert locations;
 - b. a plurality of divert guide paths, one each disposed downstream of a respective one of said plurality of switches; and
 - c. each said divert guide path comprising an arcuate portion, said arcuate portion having at least one radius, said at least one radius being at least about 12 inches.
2. The sortation conveyor of claim 1, wherein said at least one radius is at least about 18 inches.
3. The sortation conveyor of claim 1, wherein said at least one radius is at least about 24 inches.
4. The sortation conveyor of claim 1, wherein said at least one radius is at least about 30 inches.
5. The sortation conveyor of claim 1, wherein said at least one radius is at least about 120 inches.
6. The sortation conveyor of claim 1, wherein said at least one radius is at least about 180 inches.
7. The sortation conveyor of any of claims 1-6, wherein said arcuate portion has a plurality of radii.
8. The sortation conveyor of any of claims 1-6, wherein said arcuate portion is a complex curve.

9. The sortation conveyor of any of claims 1-6, wherein said at least one radius comprises a plurality of radii, at least one of said radii being different.
10. The sortation conveyor of any of claims 1-6, wherein in said arcuate portion comprises a plurality of adjacent linear segments disposed non-collinear to each other.
11. The sortation conveyor of any of claims 1-6, wherein said arcuate portion is parabolic.
12. The sortation conveyor of any of claim 1-6 wherein said guide path includes a linear section disposed upstream of said arcuate portion.
13. A sortation conveyor configured to selectively divert articles at one of a plurality of divert locations, said sortation conveyor comprising:
 - a. a plurality of switches associated with said plurality of divert locations;
 - b. a plurality of divert guide paths, one each disposed downstream of a respective associated one of said plurality of switches; and
 - c. each said divert guide path comprising an arcuate portion having an entrance, said entrance being disposed at a divert angle of less than 20°.
14. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 19°.
15. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 17°.
16. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 15°.

17. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 10° .
18. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 5° .
19. The sortation conveyor of claim 13, wherein said entrance is disposed at a divert angle of less than 3° .
20. The sortation conveyor of claim 13-19, wherein said entrance is disposed immediately downstream of its associated switch.
21. The sortation conveyor of claim 20, wherein said divert guide path comprises a linear portion disposed downstream of said arcuate portion.
22. The sortation conveyor of claim 13-19, wherein said arcuate portion comprises a plurality of adjacent linear segments disposed non-collinear to each other.
23. The sortation conveyor of claim 13-19, wherein said divert guide path includes a linear section disposed between said arcuate portion and said associated switch.
24. The sortation conveyor of claim 23, wherein said divert guide path comprises a linear portion disposed downstream of said arcuate portion.
25. The sortation conveyor of claim 23, wherein said linear section is disposed at a divert angle of less than 20° .
26. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 19° .

27. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 17° .
28. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 15° .
29. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 10° .
30. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 5° .
31. The sortation conveyor of claim 25, wherein said linear section is disposed at a divert angle of less than 3° .
32. The sortation conveyor of claim 23, wherein said divert angle of said linear section is approximately equal to said divert angle of said entrance.
33. The sortation conveyor of claim 13-19, wherein said divert guide path includes a final divert portion which is disposed at a final divert angle, and wherein said arcuate portion includes an exit, said exit being disposed at a divert angle which is less than said final divert angle.
34. The sortation conveyor of claim 13-19, wherein each said divert guide path includes a respective final divert portion which is disposed at a final divert angle, and wherein said arcuate portion includes an exit, said exit being disposed at a divert angle which is greater than said final divert angle.
35. The sortation conveyor of claim 13-19, wherein each said divert guide path includes a respective final divert portion which is disposed at a final divert angle, and

wherein said arcuate portion includes an exit, said exit being disposed at a divert angle which is equal to said final divert angle.

36. The sortation conveyor of claim 34, wherein each said one divert guide path includes a respective final divert portion which is disposed at a final divert angle, and wherein said exit is disposed at a divert angle approximately equal to said final divert angle.

37. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
- e. an initial contact zone, said divert guide path including a initial contact zone portion disposed within said initial contact zone, said initial contact zone portion comprising a first portion which is disposed at a divert angle of less than 20°.

38. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 19°.

39. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 17°.

40. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 15° .
41. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 10° .
42. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 5° .
43. The sortation conveyor of claim 37, wherein said first portion is disposed at a divert angle of less than 3° .
44. The sortation conveyor of any of claims 37-43, wherein said initial contact zone portion comprises a linear portion.
45. The sortation conveyor of claim 44, wherein all of said initial contact zone portion is linear.
46. The sortation conveyor of any of claims 37-43, wherein said initial contact zone portion comprises a non-linear portion
47. The sortation conveyor of claim 46, wherein all of said initial contact zone is non-linear.
48. The sortation conveyor of claim 46, wherein said non-linear portion is arcuate.
49. The sortation conveyor of claim 48, wherein said non-linear portion comprises a plurality of adjacent linear segments disposed non-linear to each other.
50. The sortation conveyor of claim 48, wherein all of said initial contact zone portion is non-linear.

51. The sortation conveyor of claim 48, wherein said non-linear portion is parabolic.
52. The sortation conveyor of claim 48, wherein said non-linear portion has a plurality of radii, at least one of said radii being different.
53. The sortation conveyor of claim 46, wherein said initial contact zone portion comprises a linear portion, said non-linear portion being disposed downstream of said linear portion.
54. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:
- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
 - b. a switch associated with said divert location;
 - c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
 - d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
 - e. an initial contact zone, said divert guide path including a initial contact zone portion disposed within said initial contact zone, said initial contact zone portion including a non-linear portion.
55. The sortation conveyor of claim 54, wherein said non-linear portion is arcuate.
56. The sortation conveyor of claim 54, wherein said non-linear portion is parabolic.

57. The sortation conveyor of claim 54, wherein said non-linear portion comprises a plurality of non-colinear adjacent linear segments.
58. The sortation conveyor of claim 54, wherein said non-linear portion has a plurality of radii, at least one of said radii being different.
59. The sortation conveyor of claim 54, wherein all of said initial contact zone portion is non-linear.
60. The sortation conveyor of claim 59, wherein all of said initial contact zone portion is arcuate.
61. The sortation conveyor of claim 54, wherein said initial contact zone portion comprises a first linear portion, said non-linear portion being disposed downstream of said first linear portion.
62. The sortation conveyor of claim 61, wherein said divert guide path comprises a second linear portion, said second linear portion being disposed downstream of said non-linear portion.
63. The sortation conveyor of claim 54, wherein said divert guide path comprises a linear portion, said linear portion being disposed downstream of said non-linear portion..
64. The sortation conveyor of claim 63, wherein said linear portion is disposed at a final divert angle.
65. The sortation conveyor of claim 54, wherein said divert guide path comprises a non-linear disposed downstream of said initial contact zone.

66. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:
- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
 - b. a switch associated with said divert location;
 - c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
 - d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
 - e. at least a portion of said divert guide path configured to guide at least one pusher of a diverted set of one or more of said pushers traveling along said portion along an arcuate path when said at least one pusher of said diverted set first contacts said selected one of said articles.
67. The sortation conveyor of claim 66, wherein said arcuate path comprises a plurality of non-colinear adjacent linear segments.
68. The sortation conveyor of claim 66, wherein said at least one pusher is traveling at a contact divert angle of less than 10°.
69. The sortation conveyor of claim 66, wherein said divert guide path comprises a linear portion disposed downstream of said at least a portion.
70. The sortation conveyor of claim 70, wherein linear portion is disposed at a final divert angle.
71. The sortation conveyor of claim 66, wherein said arcuate path is parabolic.

72. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
- e. at least a portion of said divert guide path configured to guide at least one pusher of a diverted set of one or more of said pushers traveling along said portion at a contact divert angle of less than 20° when said at least one pusher of said diverted set first contacts said selected one of said articles.

73. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 19° .

74. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 17° .

75. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 15° .

76. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 10° .

77. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 5° .
78. The sortation conveyor of claim 72, wherein said contact divert angle is less than about 3° .
79. The sortation conveyor of any of claims 72-78, wherein said portion comprises a linear portion.
80. The sortation conveyor of claim 79, wherein all of said portion is linear.
81. The sortation conveyor of any of claims 72-78, wherein said portion comprises a non-linear portion
82. The sortation conveyor of claim 81, wherein all of said portion is non-linear.
83. The sortation conveyor of claim 81, wherein said non-linear portion is arcuate.
84. The sortation conveyor of claim 83, wherein said non-linear portion comprises a plurality of non-collinear adjacent linear segments.
85. The sortation conveyor of claim 83, wherein all of said portion is non-linear.
86. The sortation conveyor of claim 81, wherein said portion comprises a linear portion, said non-linear portion being disposed downstream of said linear portion.
87. The sortation conveyor of claim 81, wherein said non-linear portion is parabolic.
88. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
- e. at least a portion of said divert guide path configured to guide a diverted set of one or more of said pushers traveling along said portion to maintain control of articles being diverted thereby, said endless conveying surface being capable of being operated at a speed of at least about 650 feet per minute.

89. The sortation conveyor of claim 88 wherein said portion is configured to guide said diverted set to engage articles being diverted therealong with force sufficiently low enough to maintain control.

90. The sortation conveyor of claim 88, wherein said portion is configured to guide said diverted set to laterally accelerate said articles being diverted thereby at one or more lateral acceleration rates sufficiently low enough to maintain control of said articles being diverted.

91. The sortation conveyor of claim 88, wherein said portion is configured to guide said diverted set to laterally accelerate said articles being diverted thereby after first contact has been made at one or more lateral acceleration rates sufficiently low enough to maintain control of said articles during divert.

92. The sortation conveyor of claim 88, wherein said portion is configured to guide said diverted set to laterally accelerate said articles being diverted thereby at one or more lateral acceleration rates sufficiently low enough to maintain control of said articles during divert.

93. The sortation conveyor of claim 88, wherein said portion is configured to laterally accelerate at least one pusher of said diverted set when said at least one pusher of said diverted makes first contact with an article being diverted thereby.

94. The sortation conveyor of claim 88, wherein said portion is configured to laterally accelerate at least one pusher of said diverted set after divert of said article being diverted thereby has been initiated.

95. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
- e. at least a portion of said divert guide path configured to guide at least one pusher of a diverted set of one or more of said pushers traveling along said portion to gently engage said selected one of said articles, said endless conveying surface being capable of being operated at a speed of at least about 650 feet per minute.

96. The sortation conveyor of claim 95, wherein said portion is configured to guide said diverted set to laterally accelerate each article being diverted thereby at one or more lateral acceleration rates sufficiently low enough to maintain control during divert thereof.

97. The sortation conveyor of claims 95 or 96, wherein said portion comprises a linear portion.

98. The sortation conveyor of claim 97, wherein said at least one pusher of said diverted set is laterally accelerated at a rate of less than about 1 g.

99. The sortation conveyor of claim claims 95 or 96, wherein said portion comprises an arcuate portion.

100. The sortation conveyor of claim claims 95 or 96, wherein said portion is parabolic.

101. The sortation conveyor of claim claims 95 or 96, wherein said at least one pusher of said diverted set is laterally accelerated at a rate of less than about .5 g when it initially contacts said substantially each article.

102. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said

divert guide path so as to engage and divert a selected one of said articles; and

- e. at least a portion of said divert guide path configured to laterally accelerate at least one pusher of a diverted set of one or more of said pushers traveling along said portion when said at least one pusher of said diverted set first contacts said selected one of said articles.

103. The sortation conveyor of claim 102, wherein said portion is arcuate.

104. The sortation conveyor of claim 102, wherein said portion is parabolic.

105. The sortation conveyor of claim 102, wherein said portion is configured to laterally accelerate said at least one pusher of said diverted set after first contact.

106. The sortation conveyor of claim 103, wherein said portion is configured to laterally accelerate said at least one pusher of said diverted at a plurality of acceleration rates.

107. The sortation conveyor of claim 103, wherein said acceleration rates increase as said at least one pusher of said diverted moves in said downstream longitudinal direction.

108. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers

configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and

- e. at least a portion of said divert guide path configured to guide a diverted set of one or more of said pushers traveling along said portion to initially engage said selected one of said articles while traveling at a first lateral speed and to discharge said selected one of said articles while traveling at a second lateral speed, said first lateral speed being less than about 200 feet per minute, said endless conveying surface being capable of being operated at a speed of at least about 650 feet per minute.

109. The sortation conveyor of claim 108, wherein said first lateral speed is less than about 175 feet per minute.

110. The sortation conveyor of claim 108, wherein said first lateral speed is less than about 150 feet per minute.

111. The sortation conveyor of any of claims 108-110, wherein said second lateral speed is about 236 feet per minute.

112. The sortation conveyor of any of claims 108-110, wherein said second lateral speed is about 375 feet per minute.

113. The sortation conveyor of any of claims 108-110, wherein said second lateral speed is about 425 feet per minute.

114. The sortation conveyor of any of claims 108-110, wherein said second lateral speed is about 475 feet per minute.

115. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a switch associated with said divert location;
- c. a divert guide path disposed downstream of said switch, said divert guide path comprising a plurality of divert angles;
- d. a plurality of pushers carried by said endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to be selectively diverted by said switch to travel along said divert guide path so as to engage and divert a selected one of said articles; and
- e. at least a portion said divert guide path configured to guide a diverted set of one or more of said pushers traveling along said portion to initially engage substantially said selected one of said articles while traveling at a first lateral speed and to discharge said selected one of said articles while traveling at a second lateral speed, said pushers of said diverted set being accelerated between said first and said second speeds at an average rate of less than about .51 g, said endless conveying surface being capable of being operated at a speed of at least 650 feet per minute.

116. The sortation conveyor of claim 115, wherein acceleration of said pushers of said diverted set is not constant.

117. The sortation conveyor of claim 116, wherein said portion defines a lateral speed profile for each pusher traveling therealong, said lateral speed profile being an S ramp.

118. A sortation conveyor for selectively diverting articles at one of a plurality of divert locations, said sortation conveyor comprising:

- a. a plurality of switches, each associated with one of said plurality of diverts;
- b. a plurality of divert guide paths, one each disposed downstream of a respective associated one of said plurality of switches; each said divert guide path comprising a plurality of divert angles, at least one of said divert guide paths including a portion in which said divert angles decrease in said downstream direction.

119. The sortation conveyor of claim 118, wherein at least a portion of said respective divert guide path is disposed downstream of said associated switch.

120. The sortation conveyor of claim 119, wherein all of said of said respective divert guide path is disposed downstream of said associated switch.

121. A method of selectively diverting articles disposed on an endless conveying surface moving in a downstream longitudinal direction at a divert location, comprising the steps of:

- a. providing a plurality of pushers mounted on said endless conveying surface and traveling therewith; and
- b. moving said endless conveying surface in said downstream direction;
- c. initially contacting a selected one of said articles to be diverted with at least one pusher of a diverted set of one or more pushers while said at least one pusher is traveling at an initial contact divert angle, said initial contact angle being less than about 20°; and
- d. guiding said diverted set of one or more pushers along a divert guide path through a plurality of divert angles subsequent to said step of initially contacting.

122. The sortation conveyor of claim 121, wherein said initial contact angle is less than 19°.

123. The sortation conveyor of claim 121, wherein said initial contact angle is less than 17° .
124. The sortation conveyor of claim 121, wherein said initial contact angle is less than 15° .
125. The sortation conveyor of claim 121, wherein said initial contact angle is less than 10° .
126. The sortation conveyor of claim 121, wherein said initial contact angle is less than 5° .
127. The sortation conveyor of claim 121, wherein said initial contact angle is less than 3° .
128. The method of any of claims 121-127, comprising, prior to the step of initially contacting said selected article, the step of positioning said selected article on said endless conveying surface so as to be initially contacted by said at least one pusher.
129. The method of any of claims 121-127, where said endless conveying surface is moved at a speed of at least about 600 feet per minute.
130. The method of any of claims 121-127, wherein the step of initially contacting comprises the step of causing said at least one pusher to travel along a non-linear divert guide path.
131. The method of claim 130, wherein said non-linear divert guide path is arcuate.
132. The method of claim 130, wherein said non-linear divert guide path is parabolic.

133. The method of claim 130, comprising the step of causing said at least one pusher to travel along a linear divert guide path subsequent to the step of guiding said diverted set of one or more pushers along a divert guide path through a plurality of divert angles.

134. The method of any of claims 121-127, wherein the step of initially contacting comprises the step of causing said at least one pusher to travel along a linear divert guide path.

135. The method of claim 134, wherein said non-linear divert guide path is arcuate.

136. The method of claim 134, wherein said non-linear divert guide path is parabolic.

137. The method of claim 134, comprising the step of causing said at least one pusher to travel along a linear divert guide path subsequent to the step of guiding said diverted set of one or more pushers along a divert guide path through a plurality of divert angles.

138. A method of selectively diverting articles disposed on an endless conveying surface moving in a downstream longitudinal direction at a divert location, comprising the steps of:

- a. providing a plurality of pushers mounted on said endless conveying surface and traveling therewith; and
- b. initially contacting a selected one of said articles with at least one pusher of a diverted set of one of more pushers while said at least one pusher is traveling along a non-linear divert guide path.

139. The method of claim 138, wherein said non-linear divert guide path is arcuate.

140. The method of claim 138, wherein said non-linear divert guide path is parabolic.

141. A method of selectively diverting articles disposed on an endless conveying surface moving in a downstream longitudinal direction at a divert location, comprising the steps of:

- a. moving said endless conveying surface in said downstream direction at a speed of at least 650 feet per minute; and
- b. diverting selected articles while maintaining control of said selected articles.

142. The method of claim 141, comprising the step of providing a plurality of pushers mounted on said endless conveying surface, and wherein the step of diverting comprises guiding a diverted set of one of more pushers along a divert guide path which is configured to maintain control of said selected articles being diverted.

143. A method of selectively diverting articles disposed on an endless conveying surface moving in downstream longitudinal direction at a divert location, comprising the steps of:

- a. providing a plurality of pushers mounted on said endless conveying surface; and
- b. initially contacting a selected one of said articles with at least one pusher of a diverted set of one of more pushers while said at least one pusher is being laterally accelerated.

144. The method of claim 143, wherein subsequent to said initially contacting step, said diverted set of pushers are laterally accelerated at more than one lateral acceleration rate.

145. A method of selectively diverting articles disposed on an endless conveying surface moving in downstream longitudinal direction at a divert location, comprising the steps of:

- a. providing a plurality of pushers mounted on said endless conveying surface;
- b. moving said endless conveying surface in said downstream direction at a speed of at least 650 feet per minute;
- c. initially contacting a selected one of said articles with at least one pusher of a diverted set of one of more pushers while said at least one pusher is traveling at a first lateral speed;
- d. accelerating said diverted set to a second lateral speed; and
- e. discharging said one of said articles to the selected divert.

146. The method of claim 145, wherein acceleration of said diverted set during said accelerating step is not constant.

147. The method of claim 146, wherein each pusher of said divert set has an S ramp lateral speed profile.

148. A method of selectively diverting one or more pushers mounted on an endless conveying surface moving in downstream longitudinal direction, from a home path into contact with a selected article of a plurality of articles disposed on said endless conveying surface, comprising the steps of:

- a. causing said one or more pushers to travel along a path having an initial angle, followed by an intermediate angle, then followed by a final angle, said angles being measured relative to said downstream longitudinal direction, said intermediate angle being greater than said initial and said final angle;
- b. thereafter causing said one or more pushers to contact said selected article.

149. The method of claim 148, wherein said intermediate divert angle is greater than about 10° .

150. The method of claim 148, wherein said intermediate divert angle is greater than about 15° .

151. The method of claim 148, wherein said intermediate divert angle is approximately about 20° .

152. The method of any of claims 148-151 wherein said final divert angle is less than about 10° .

153. The method of any of claims 148-151 wherein said final divert angle is less than about 5° .

154. The method of any of claims 148-151 wherein said final divert angle is approximately 3° .

155. The method of any of claims 148-151 wherein said final divert angle is approximately half of said intermediate divert angle.

156. A sortation conveyor for selectively diverting articles at a divert location, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction;
- b. a plurality of pushers carried by an endless conveying surface and configured to travel therewith, each of said plurality of pushers configured to travel along a path along to contact a selected one of said articles;

- c. said path configured to accelerate said pusher to a first lateral speed, and to decelerate said pusher to a second lateral speed prior to said pusher initially contacting said article.

157. The sortation conveyor of claim 156, wherein said pusher is traveling at a divert angle greater than about 10° when traveling at said first lateral speed.

158. The sortation conveyor of claim 156, wherein said pusher is traveling at a divert angle greater than about 15° when traveling at said first lateral speed.

159. The sortation conveyor of claim 156, wherein said pusher is traveling at a divert angle greater than about 20° when traveling at said first lateral speed.

160. The sortation conveyor of any of claims 156-159 wherein said pusher is traveling at a divert angle when traveling at said second lateral speed which is approximately half of the divert angle said pusher is traveling at at said first lateral speed.

161. A method of selectively diverting articles disposed on an endless conveying surface moving in downstream longitudinal direction at a divert location, comprising the steps of:

- a. accelerating a pusher carried by said endless conveying surface to a first lateral speed;
- b. decelerating said pusher to a second lateral speed; and
- c. thereafter contacting a selected one of said articles with said pusher.

162. The sortation conveyor of claim 161, wherein said pusher is traveling at a divert angle greater than about 10° when traveling at said first lateral speed.

163. The sortation conveyor of claim 161, wherein said pusher is traveling at a divert angle greater than about 15° when traveling at said first lateral speed.

164. The sortation conveyor of claim 161, wherein said pusher is traveling at a divert angle greater than about 20° when traveling at said first lateral speed.

165. The method of any of claims 161-164, wherein said pusher is traveling at a divert angle when traveling at said second lateral speed which is approximately half of the divert angle said pusher is traveling at at said first lateral speed.

166. The method of claims 161-164, comprising the step of accelerating said pusher to a third lateral speed after the step of contacting.

167. The method of claim 166, wherein said third lateral speed is approximately equal to said first lateral speed.

168. The method of claim 166, wherein the step of accelerating said pusher to a third lateral speed comprises the step of guiding said pusher along a along a non-linear divert guide path.

169. The method of claim 166, comprising, prior to the step of accelerating said pusher to a third lateral speed, the step of guiding said pusher along a along a linear divert guide path.

170. A method of selectively diverting articles disposed on an endless conveying surface moving in downstream longitudinal direction at a divert location, comprising the steps of:

- a. moving said endless conveying surface in said downstream direction at a speed of at least 650 feet per minute;
- b. initially imparting energy into the selected articles at a first lateral speed; and
- c. imparting additional energy into the selected articles at lateral speeds increasing up to a second lateral speed.

171. A divert guide path for use with a sortation conveyor, said sortation conveyor comprising a plurality of pushers configured to be selectively diverted onto said guide path so as to divert a selected article at a divert location, said guide path configured to guide a diverted set of one or more of said pushers traveling at a longitudinal speed of at least about 600 feet per minute along said guide path to maintain control of articles being diverted thereby.

172. A sortation conveyor in combination with the guide path of claim 171, said sortation conveyor comprising:

- a. an endless conveying surface configured for movement in a downstream longitudinal direction, said endless conveying surface moving at a longitudinal speed of less than 600 feet per minute; and
- b. a plurality of pushers carried by said endless conveying surface and configured to travel therewith.

173. A sortation conveyor configured to selectively divert articles at a divert location, said sortation conveyor comprising:

- a. a plurality of switches associated with said divert location, one of said switches comprising a last switch of said plurality of said switches; and
- b. a divert guide path associated with said last switch, said divert guide path comprising an arcuate portion having at least one radius, said at least one radius being at least about 12 inches.

174. A sortation conveyor configured to selectively divert articles at a divert location, said sortation conveyor comprising:

- a. a plurality of switches associated with said divert location, one of said switches comprising a last switch of said plurality of said switches; and
- b. a divert guide path associated with said last switch, said divert guide path comprising an arcuate portion having an entrance, said entrance being disposed at a divert angle of less than 20°.